

REMARKS


Claims 1 through 20 are pending in this application.

The specification is being amended to correct a typographical error. Specifically, the amendment was made to the equation set forth on page 3 of the Applicant's Second Preliminary Amendment filed on 14 December 2001. This amendment restores the equation to its state as set forth on page 7 of Applicant's originally filed specification.

In view of the foregoing Third Preliminary Amendment, this application is believed to be in condition for examination. Should questions arise during the examination, the Examiner is requested to contact applicant's attorney.

No fee is incurred by this Amendment.

Respectfully submitted,



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MARKED-UP VERSION OF AMENDMENTS

IN THE SPECIFICATION

Please amend the paragraph bridging pages 6 through 8, from line 31 on page 6 through line 18 on page 8, as follows. The same portion was once amended in the Applicant's Second Preliminary Amendment filed on 14 December 2001. The aforesaid amendment of 14 December 2001 has been incorporated.

Figure 2 schematically shows a closed injection moulded closure 20 according to the invention disclosed here. The closure 20 consists of a lower closure part 21 and an upper closure part 22, which is shown here in the closed position in which it is also produced. According to the invention, the closure 20 shown here has (in contrast to the prior art) no main hinge connection (cf. Figure 1) between the closure parts 21 and 22. The closure parts 21 and 22 are instead actively connected to one another by two, preferably symmetrically formed, elements 23.1 and 23.2 (owing to the direction of view, only one element 23.1 is visible) and four hinge connections 24.1, 24.2, 25.1 and 25.2. Two hinge connections 24.1, 25.1 and 24.2, 25.2 each border an element 23.1 and 23.2, respectively, on non-adjacent sides and connect it to the closure parts 21 and 22, respectively. The hinge connections 24.1 and 25.1, and 24.2 and 25.2, respectively, make an angle ϕ (cf. also Figure 3) with one another. The two planes defined by the hinge connections 24.1 and 25.1, and 24.2 and 25.2, respectively (not shown) in turn make an angle ω . By varying the angles ω and ϕ and their ratio to one another, the snap-on effect and an opening angle α of the closure are determined. The relationship between the opening angle α and the angles ω and ϕ is given by the following formula:

$$[\phi = \arctan \left[\frac{\sin(\alpha / 2)}{1 - \cos(\alpha / 2)} \cdot \sin(\omega / 2) \right]]$$

$$\phi = 2 \cdot \arctan \left[\frac{\sin(\alpha / 2)}{1 - \cos(\alpha / 2)} \cdot \sin(\omega / 2) \right]$$

To be able to produce the closure 20 in the closed position, the elements 23.1 and 23.2 and the hinge connections 24.1, 24.2, 25.1 and 25.2 are arranged in such a way that they are accessible in the mould from the inside of the closure (arrow 27) and from the outside of the closure (arrow 28) and can be removed from the mould. For this purpose, the connecting elements 23.1, 23.2 and the associated hinge connections are arranged in a surface which is inclined relative to the closure axis. Preferably, hinges according to the patents EP 0 746 512, PCT/EP96/2780 or the Patent Application PCT/1999/00277 of the same Applicant are used for the closure, the contents of which are hereby incorporated by reference with regard to the details of the design of the hinges. Particularly in the case of closures having curved contours in which the connecting elements 23.1, 23.3 have a corresponding convexity or curvature owing to their contour integration, the hinge according to PCT/EP96/2780 is advantageous since the elastic strain of the longer free edges 46.1 and 46.2. (See Figure 3) under tension has the desired snap-on effect.